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ABSTRACT

The material on backpack cookery has been written with the classroom teacher in mind, but it can be adapted by camp leaders, 4-H clubs, scouting organizations, and other youth groups. Basic instructions in planning and preparing meals for the backpacking trip are given, along with a discussion on traveling light and a list of essential and "convenience" cooking equipment. Considerations of safety and ethics in camping and eating in the outdoors are covered. Included in the module are: lesson plans for five 50-minute classes, entitled Meal Planning, Preparation for Food Buying (to organize for comparative shopping), Comparative Shopping, Cost Analysis (to determine the best store for purchasing food for the trip), and Precamp Preparations (to continue practical preparations and emphasize the importance of group participation and cooperation); recipes suitable for use on a backpacking trip, such as marmalade, deviled ham salad, wild rice and chicken to be made while on the trip and walnut sticks, oatmeal carmelites, zucchini bread to be prepared before the trip; an index to the recipes; a glossary; a 13-source bibliography; and five appendices (Menu Suggestion Sheet, Menu Planning Sheet, Shopper's Guide Sheet, Checklist for Overnight Backpacking, and a Suggested Written Examination). (Author/LC)

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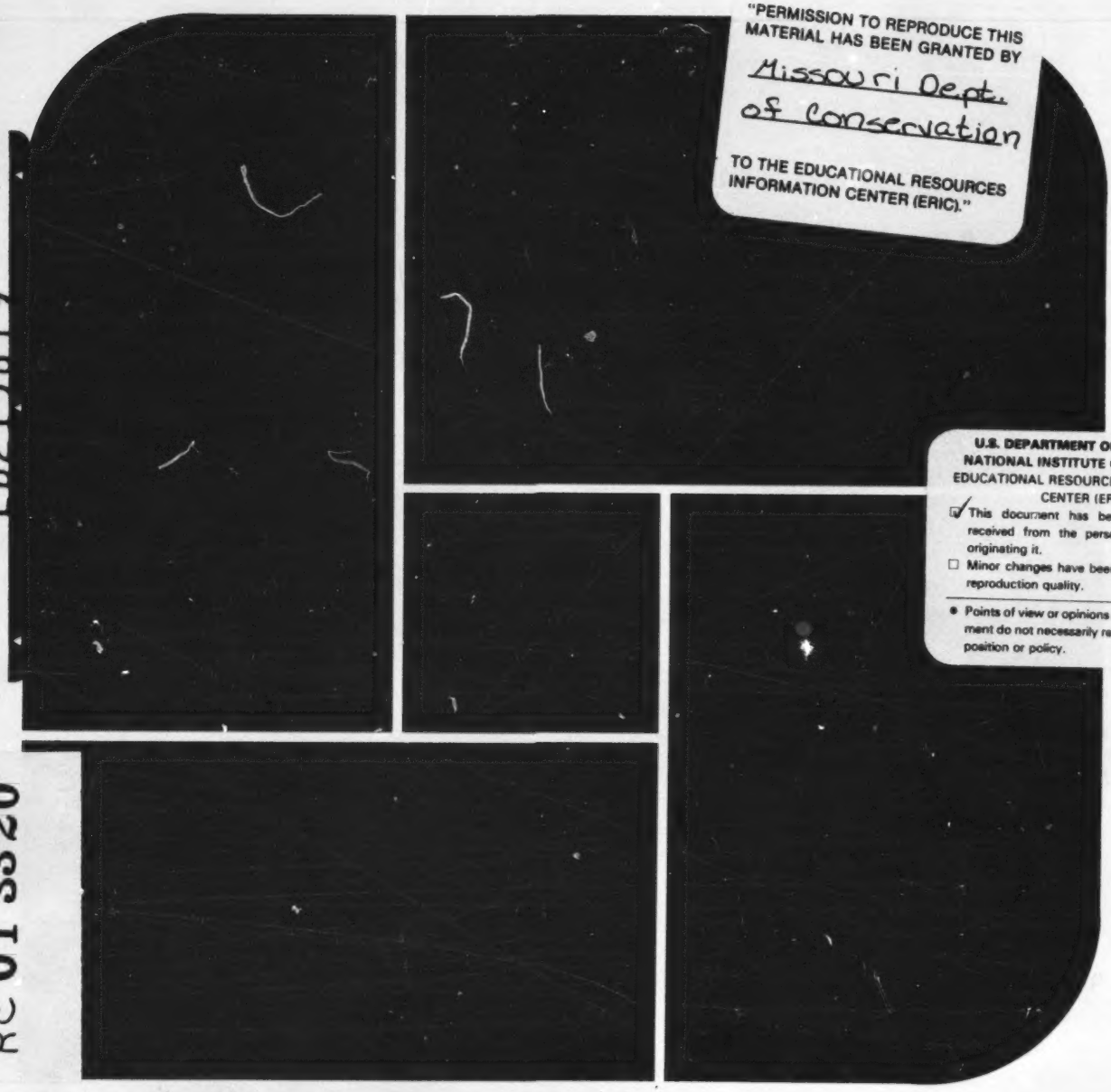

BACKPACK COOKERY

OUTDOOR LIVING SKILLS SERIES

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OUTDOOR SKILLS EDUCATION MODULES

Missouri's natural resources belong to all its citizens. More and more people are going outdoors to hunt, fish, boat, hike, camp, explore, and learn about nature. The skills they use in the outdoors can have a direct effect on resources. That's why it is important to educate youth and adults in how to use the outdoors wisely and responsibly through schools, community groups, and agencies.

The Outdoor Skills Education Unit of the Department of Conservation, in cooperation with the Department of Elementary and Secondary Education, is developing educational programs to teach Missourians how to use wisely and skillfully the state's many resources for outdoor recreation. The materials, presented as modules, can be used individually or combined in a series by schools, camps, clubs, scouting groups, and other youth or adult organizations. Topics include the shooting sports, casting and angling, trapping, archery, backpacking, camping, aquatics, map and compass, and other skill areas.

Each module is a self-contained unit that includes information on the subject, lesson plans, activities, class exercises, tests, suggested visual aids, and references. Experienced instructors who have taught the subjects and successfully used the activities have written the modules.

For additional information on conservation and outdoor education programs, write the Education Section, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.

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INSTRUCTOR MANUAL

BACKPACK COOKERY

OUTDOOR LIVING SKILLS SERIES

MISSOURI DEPARTMENT OF CONSERVATION
EDUCATION SECTION

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About the author

Jan Phillips teaches experiential education at The College School in Webster Groves, Missouri. She has spent the last several years designing and implementing interdisciplinary curricula to be used in the classroom. In addition, she has taught adventure education in the Masters at Teaching program at Webster College.

In 1975, Jan received the Missouri Conservation Federation's Conservation Educator of the Year Award. Her book, *Wild Edibles of Missouri,* published by the Missouri Department of Conservation, was chosen the Best Conservation Information Publication of North America in 1980.

Frequently making the woods her classroom, Jan has been camping for years. She was a Girl Scout leader, has horsepacked into both Colorado and Wyoming mountain ranges, has floated down many of Missouri's rivers, and has attended the North Carolina Outward Bound School and New Hampshire's Project Adventure workshops. She is a certified leader in the St. Louis area for initiative ropes courses, climbing and rappelling, and caving activities.

Jan received a bachelor of science degree in education from the Kansas State College of Pittsburg and an MAT in science from Webster College. She and her husband Abe, and daughters Sheli and Janette, are avid fans of Mother Nature.

How to use this module

This module has been produced for you who teach or work with youth. The material has been written with the classroom teacher in mind, but it also can be adapted by leaders of camps, 4-H clubs, scouting organizations, and other youth groups. A variety of information and activities has been included to make the module useful to as many groups as possible. It may be used individually or combined with other modules for a more extensive course.

The Backpack Cookery module contains:

Introductory Information—Questions such as "Why teach this subject?" are answered. Goals and objectives approved by the Missouri Department of Elementary and Secondary Education are established. A brief history of the subject is given as background and a means of introducing the subject.

Food Safety—This module addresses the subject of food safety and its importance when packing and preparing meals outdoors.

Ethics—The importance of acting responsibly when backpacking and camping is stressed. Included are tips on preparing and cleaning up a cooking site.

Trip Planning and Menus—This section provides the information necessary to plan meals for a backpacking trip and includes a wide selection of menus.

Lesson Plans—Field-tested methods of teaching this material are provided in five lesson plans. The time for each

lesson is only suggested and will vary with instructors. Equipment and materials needed for the activities are listed.

Student Handouts—Several handouts are included to aid meal and trip planning.

Suggested Written Test—If you are a classroom teacher and want to evaluate your students' mastery of the material you have been teaching, a sample written examination is included along with a suggested skills test. Test questions are keyed directly to the objectives for the module.

Glossary and Bibliography—These are provided as additional information which may help in teaching the subject in more detail.

Outdoor Skills Education Specialists are assigned to eight regions throughout the state. They will assist you in obtaining materials and scheduling equipment and films that are available from the Department of Conservation. Conservation Education Consultants are assigned to 14 regions and will discuss with you the Department's Conservation Education materials. Check the last page of this module for names, addresses, and regions.

Review committee

The material in this module has been reviewed by the following people:

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Questionnaire

Please help us evaluate the effectiveness and use of our materials by completing the following questionnaire and mailing it to the Missouri Department of Conservation, Outdoor Skills Education, P.O. Box 180, Jefferson City, MO 65102.

How did you obtain a copy of this module? _____

Have you used this material? Why or Why not? _____

Your position _____

Age group you teach _____

CONTENT AND FORMAT

Were you given enough information to teach this course?

Enough_____ Not Enough_____ Too Much_____

Comments:_____

_____

Was material presented in a manner easy for you to use?

Yes_____ No_____

Comments:_____

_____

What information would you add or subtract? _____

_____

LESSON PLANS AND ACTIVITIES

Did you use the lesson plans?

All of them_____ Some of them_____ None of them_____

Were the time periods allowed for activities adequate?

Adequate_____ Too much time_____ Not enough time_____

Comments:_____

_____

_____

Which activities did students most enjoy? _____

What additional activities would you include? _____

What suggestions do you have for future modules? _____

What topics would you like to see covered? _____

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Topic Outline

Introduction
- I. Goal
- II. Purpose
- III. Content
- IV. Objectives
- V. History

Food Safety
- What foods are safe to carry

Ethics
- Rules for camping

Traveling Light
- I. Energy requirements
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Equipment
- I. Essential cooking equipment
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- IV. Avoiding problems
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D. Noodles
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VI. Beverages

VII. Breads and spreads

VIII. Snacks and desserts
A. Fruits
B. Vegetables
C. Candy
D. Campfire desserts

Foods To Be Made Before the Backpacking Trip

I. Sweets

II. Breads

III. Snacks

Introduction

Goal of the module

To increase one's enjoyment of the outdoors by learning to plan and prepare meals for a backpacking trip that are economical, nutritious, safe, and easy-to-fix with lightweight ingredients.

Purpose of the module

Today's lifestyle has more people than ever before in the outdoors exploring out-of-the-way places in their leisure time. More than 28 million hikers and backpackers will take to trails and wilderness areas this year in an effort to get away from the everyday pace and to experience the delights of nature's beauty.

Basic needs for survival:
#1 Air
#2 Shelter
#3 Water
#4 Food

Some of those 28 million will be responsible for planning appropriate foods to pack along with them. Food, fourth in importance of the four basic needs for survival, provides the energy needed for an outdoor excursion.

Although a person *could* exist without food for about three weeks, few of us will ever be required to do so. Mealtimes are a welcome break on the backpacking trip. Tasty, well-planned meals compensate for many minor nuisances. Blistered feet or an aching back temporarily can be forgotten while eating a particularly pleasing meal. Therefore, food is an important element in the overall success of the trip.

This module complements the *Backpacking* module (to be printed) by providing lightweight, nutritious, easy-to-prepare meals for a backpacking trip. All meals are to be prepared over a backpack stove or a campfire. More elaborate food preparation and use of heavier equipment is covered in the *Campground Cookery* module.

Content of the module

Backpacking can be both fun and educational if students first learn something about the responsibilities and pleasures that the experience brings. This module gives basic instruction in planning and preparing meals for the backpacking trip. Camping and eating in the outdoors raise considerations of safety and ethics, which also are covered here.

Included with the subject matter are lesson plans for five 50-minute classes, a number of recipes suitable for use on a backpacking trip, an index to the recipes, a glossary, a bibliography, and five appendixes (Menu Suggestion Sheet, Menu Planning Sheet, Shopper's Guide Sheet, Checklist for Overnight Backpacking, and a Suggested Written Examination).

Objectives

At the completion of the instruction, students should be able to do the following:

1. Describe the proper way to dispose of garbage and trash when backpacking.
2. List at least 10 of the essential items of cooking equipment for backpacking.
3. List five foods that require refrigeration to be safe.
4. Plan a backpacking meal for three or four people.
5. List at least four high-energy foods.
6. Describe the process of comparative shopping.
7. Prepare a backpacking meal for three or four people.
8. Define terms such as jerky, pemmican, freeze-dried, biodegradable, and fruit leather.

History

Eating has a long and honorable record. While no source indicates an exact timetable, life has inhabited this earth for approximately 2½ billion years.

Long after the beginning of life, fire made its imprint upon the human diet. It provided warmth, light, and a total change from the raw dining fare. Evidence of man-made fires dates back some 750,000 years in France. But despite the improved taste when game was tossed on embers, the world was slow to become sophisticated about menus. Only 12,000 years ago, man's cooking was still done only over an open fire.

At a period when neither camping nor outdoor cooking was fashionable, scouts began putting together menus and cookbooks. Early scouting trips featured one-pot meals; great importance was placed on fire-building skills. Later, meals became more complex, and the majority of the camping day began to center around fire-building techniques and food preparation.

Today's camping experiences are diverse. The range of menus spans from elaborate, elegant meals to simple wilderness fare.

Food Safety

Editor's Note: For more information on food safety, consult your local University of Missouri Extension Center. Some of the information here is adapted from their publications.

Refrigeration Needed
eggs
fluid milk
meat
chicken
fish
salads, desserts, casseroles or custards containing these foods

Refrigeration Not Needed
cheese
peanut butter
raw fruits and vegetables
breads and cereals
powdered milk
dried foods
canned foods
freeze-dried foods

Keeping food safe to eat is particularly important when cooking outdoors. Lack of sanitation, insufficient cooking, and improper storage can allow bacteria in food to increase to dangerous levels.

When refrigeration is not available, it's important to carry foods that remain safe at warm temperatures. Bacteria live and grow at temperatures between 45°F (7°C) and 140°F (60°C).

Protein furnishes food for bacteria to grow; therefore, it should be selected carefully. The most perishable foods are those containing meat, poultry, seafood, eggs, or milk. Protein foods such as peanut butter and cheese are usually safe to carry because of low moisture content. Likewise, other protein sources such as powdered milk or freeze-dried foods are good, but a safe water supply is necessary in order to use them.

Raw fruits and vegetables are safe foods. Harmful bacteria do not grow well in fruits because of their high sugar content and little or no protein. Dried fruits, such as raisins, are good to carry because their high sugar concentration and low water content prevent bacteria from growing.

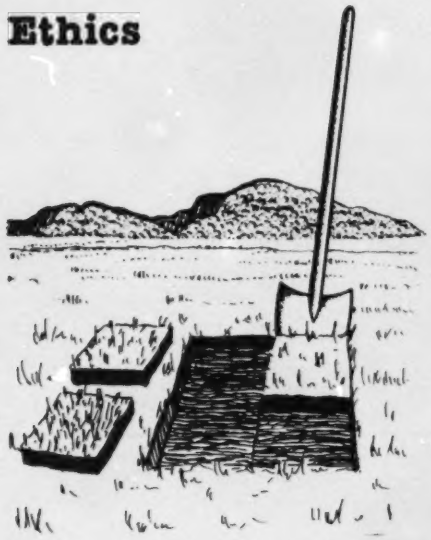
Mayonnaise is often listed as an unsafe food. While mayonnaise itself is not normally a cause of food poisoning, it is often mixed with high protein foods in which bacteria will grow.

Foods selected for a backpacking trip should not require refrigeration. Some foods, such as canned meats or mayonnaise can be carried unopened and used if eaten immediately after opening. Any of these leftovers should not be eaten if they are not refrigerated and the temperature is above 40°F (4°C). Even when winter camping, do not allow perishable food to sit in the sun.

Hygiene is important on a backpacking trip. Make sure you have a water source for washing hands. Stress to your students that they should use soap and always wash their hands before handling any food.

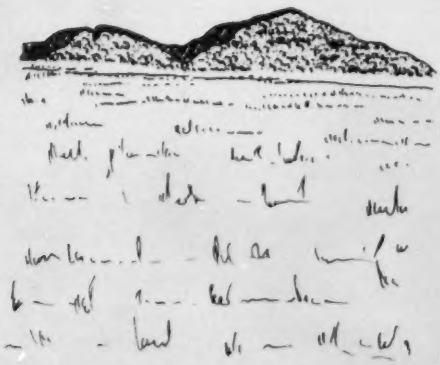
Food safety is always important. Prevention of food poisoning becomes essential when you are on the trail and away from medical care if someone should become seriously ill.

Ethics



Carefully remove the sod and set it aside.

Build a small fire—do not use rocks.



Scatter ashes and replace the sod.

At one time, wilderness camping meant drinking from streams and lakes, building a large fire at camp, and digging a hole to bury garbage and trash. Those days are gone and the rules for ethical conduct have changed. Responsible wilderness camping today means leaving the area in a natural state, avoiding fire scars, and packing out everything taken in, including all garbage and trash. The wilderness camping ethic requires leaving a campsite so clean that it is impossible to tell that anyone has used the area.

While most wilderness cooking can be done with a backpack stove, sometimes a campfire is desirable.

When a fire is built, it should be kept small. Avoid clearing a large area of ground and making a circle of rocks. The scar to both the ground and the rocks takes a long time to erase. An old Indian saying is a reminder to use small fires—"White man build great fire, sit way back; Indian build little fire, sit close." If a campfire is built, wood embers should be raked together and burned into ash. (Ash will dissolve into the ground with water or rain, but charcoal will last forever.)

All plastic, aluminum foil, tin cans—in fact, everything taken in—should be carried out. Advertised "disposables" are not to be "disposed of" in the wilderness. Only biodegradable soaps (such as Sutter's, Basic H, Camp Sudes, or Liquid Castile) are recommended for washing dishes and bathing.

You shouldn't have many dishes and they probably can be washed in one of your cooking pots. Dishwater should be dumped well away from streams or other bodies of water. If you have lots of dishes and cleanup, another method is to dig two shallow holes (at least 100 feet from any water) and place a large garbage bag over the holes. Fill each with water—wash in one, rinse in the other. Remove the plastic bag, allowing your water to seep into the holes. Replace the dirt and restore the site. If stream water is used for washing dishes, be sure to boil it.

Traveling Light

Energy requirements

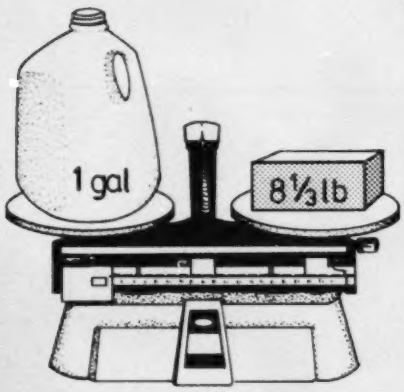
Energy cost of activities (Exclusive of basal metabolism and influence of food)	*Calories per 100 lbs. per hour*
Walking on hard, smooth, level surface:	
	at 2 mph... 45
	at 3 mph... 90
	at 4 mph...160
(For walking on rough trails, multiply each figure by a rather arbitrary figure of 2)	

The importance of meal planning should not be overlooked, especially when the amount of weight to be carried is a significant factor in what can be taken.

The human body, depending on age, sex, and size, requires approximately 1,100 calories per day per 100 pounds of body weight just for maintenance. The more you exercise, the more calories you need. (For additional information, refer to the *Basic Principles* module.)

Using the chart at the left, you can compute approximately how many calories you will need for a day's activities. On winter trips more calories are needed because the body expends more energy to keep warm.

Water



Water is an important factor in backpacking. It is essential, but heavy. A gallon of water weighs 8⅓ pounds. Part of the job of a backpacker is to know various ways to purify water found on the trip. Water can be purified by adding iodine, chlorine bleach, or purification tablets, boiling it, or using treatment equipment. The best way to guard against all pollutants is to disinfect the water with iodine and then filter it using a commercial filter system. For more information, consult the *Basic Principles* module. Purification of water often leaves a taste that is disagreeable. Shaking the water supplies oxygen and improves the taste of treated water.

The amount of water you will need while backpacking depends upon the type of trip, temperatures expected, and length of time between water supplies. For normal conditions, allow as an absolute minimum one-half gallon of water per person per day. This amount should be doubled if heat is excessive or exercise vigorous.

Lightweight products

Ideal for the backpacker is the freeze-dried meal, which is extremely lightweight and easy-to-prepare. Dehydrated foods are also a great boon to backpackers. The advantages of freeze-dried foods are somewhat marred by both their taste and their cost, however. Backpackers who are willing to spend a little more time planning meals can enjoy more variety and save money when purchasing food.

Vikki Kinmont and Claudia Axcell's book *Simple Foods for the Pack* (1976) contrasts two meal styles: (1) Two experienced backpackers, with food that was primarily dehydrated, carried 1.3 pounds of food per person per day. (2) The authors, with supermarket items, packets of refrigerator leftovers, and an occasional orange, carried 1.4 pounds of food per person per day. This experiment demonstrated that a backpacker's diet need not be without the variety provided by fresh foods and grocery items.

Kip Rusk, who spent nine months walking the Continental Divide, bought freeze-dried food for his journey. But after three weeks, he abandoned the freeze-dried menus (food caches were scheduled two to three weeks apart). For the rest of the trip, he ate packaged macaroni-and-cheese, rice meals, and dressing, with a can of either turkey, ham, tuna, chicken, or corned beef added. He discovered that the grocery-store items tasted better and were more filling, with no appreciable difference in weight.

Equipment

Essential cooking equipment

The first list of cooking equipment includes the items you should have on a backpacking trip. It is followed by a suggested list of nice-to-have extras.

- Backpack stove (1 stove per 3-4 people) if you don't plan to use a campfire
- Bottle of extra fuel for stove
- No. 10 tin cans or cooking pot nest (3 cans or 1 pot nest per stove)
- Bandana (1 per stove)
- Wooden cooking spoon (1 per stove)
- Matches (allow 1 book per day)
- Plastic water bottles (2 quarts per person minimum)
- Spoon (1 per person, with a few extra to replace lost and forgotten spoons)
- Durable metal or insulated plastic cup
- Strong plastic bowl (1 per person)
- Knives (1 pocketknife)
- Can opener (Some knives have a can opener. A U.S. Army can opener is good; other substitutes are not.)
- Spices (salt, pepper, dried onion flakes, and oregano, stored in plastic shakers or film canisters)
- Scouring pads
- Soap
- Plastic container for peanut butter
- Squeeze containers with closeable lids (such as honey and mustard come in), instant dry milk, and sugar
- Plastic squeeze tubes for spreads: mustard, ketchup, jelly, chutney, and marshmallow cream
- Plastic bags for making salads or biscuits, storing leftovers, and depositing dirty cans and trash to be carried out
- First-aid supplies

Conveniences

- Candle fire-starter (1 small piece of candle wrapped in waxed paper for wet wood fires)
- Additional spices (curry powder, bay leaf, garlic powder, or your own favorites)

Pair of pliers (Bandanas can be used for lifting hot pots, but pliers are better)
Paraffin-coated matches in a waterproof container
Mini-oven (small oven that fits on backpack stove, to allow a greater choice of cooking methods)
Square skewers (for toasting food over a campfire)
Knife (1 flat mess kit knife per person)

Backpack stoves

A variety of backpack stoves are available to the hiker. Before deciding upon a stove, know what you want from your stove. Some outdoor magazines periodically rate backpacking stoves and other equipment and this will give you some facts and figures before you set out to purchase a stove. *Backpacker* magazine evaluated seven stoves in 1979 (April/May, pp. 65-71). In 1981, they ran an article on "The World's Best Backpacking Stoves" (June/July, pp. 50-61); *Outside* magazine ran an article "See How They Burn: The best backpacking stoves of 1980" (February/March, 1980, pp. 93-96). If you check with an outfitting or sporting goods store, you should find other sources of information on stoves.

Planning the Trip

Factors to consider

Menu planning, food purchasing, and meal preparation are areas where everyone going on the trip can become involved. However, before class members can make wise decisions, they need to know some of the specifics of the trip, such as length of stay, difficulty of hike, and availability of water.

Group involvement

One way to engage classroom groups in meal preparation is to provide a sheet of menu suggestions (see Appendix 1). The Lightweight Menu Choices list found at the beginning of the next section may be used, or you may want to make up your own. You might wish to have on hand several different sheets, some allowing more flexibility in menu selection than others.

When planning menus, make sure that meals will be simple and easy to prepare. Foods should not require refrigeration. Meals should be nutritious, using high-energy foods, not junk food. Sharing ideas before deciding on the menus will uncover such information as vegetarian tastes or food allergies.

Divide class members into groups of three or four for the backpacking trip. Have each small group make the grocery list for its meals. Later, the leader needs to carefully

review the lists to avoid duplicate purchases and overbuying or underbuying, to ensure that sealable sandwich bags, salt, pepper, butter, oil, spices, and matches are included—items that are often overlooked.

Shopping and packing

Depending on class time, an exercise in comparative shopping may be done. The small groups, each with a Shopper's Guide Sheet (see Appendix 3), should visit several different kinds of stores to compare prices.

After careful comparison, the store that can supply the items needed at the best price should become the next day's purchase site. The same small groups can buy the food they need, or one small group can be selected as buyers for the entire class.

Class members also should organize and pack equipment needed for the trip, as well as mix or bake any food items that can be prepared ahead of time. Remove items from boxes and store in sealable plastic bags. These bags can be used for trash and garbage later.

Stoves should be test-lit and readied for the trip. Students should be taught to light the stove and to care for it properly, and they should be reminded of the inherent dangers of fuel and flame. Fuel for stoves should only be carried in containers specially designed for that purpose. Stoves and fuel bottles should be packed in the outside pockets of backpacks so leaks readily can be detected. First-aid supplies should accompany every trip. Allowing students to inventory the first-aid supplies acquaints them with what is there and assures the leader that nothing has been forgotten.

Avoiding problems

Some of the most frustrating moments of a backpacking trip can occur before and after meals, unless thought has gone into planning those times. Mealtimes can be positive, group-building experiences only when each member has clear expectations regarding cooking needs, cleanup responsibilities, and free time. Problems arise when members feel an injustice exists regarding work duties. A rotating system that allows for each meal to have some cooks, some cleaners, and some loafers works well. Encouraging the class members themselves to divide up the duties ahead of time is the best approach.

Afternoon outings / overnight trips

An afternoon outing that focuses on fire building and cooking can be both fun and educational. Even on an afternoon excursion, pack the food to the site. A backpacking rule is that *everyone* shares in carrying the group's gear. On longer excursions, it is important that hikers know what food items they are carrying in their packs.

The outing might mean simply going outside in the

***Warning!** When taking an overnight trip, it's essential to plan more than just the meals. Keep your group involved and busy throughout the trip by planning a variety of fun-filled learning activities.*

school yard, or walking to the nearest park, or driving to a wooded public or private site.

Extended overnights take considerably more planning than afternoon outings, to work out the logistics of the trip. Whether you use an established trail system or navigate with maps and compasses to reach the desired destination depends upon the leader's skills. (Larger groups should use only established trails to avoid too much impact on an area.) Trail maps and information can be obtained from national, state, and local agencies. Two helpful reference books are Ramon Gass' *Missouri Hiking Trails* (1980) available from the Missouri Department of Conservation, and Fred Lafser's *Hiking and Backpacking in Missouri* (1981) available from local bookstores.

Water bottle marked with measurements.

Helpful hints

1. Fill plastic squeeze bottles (that have been carefully washed and allowed to dry for a week) with sugar, instant dry milk, or other staples.

2. Mark a plastic quart water bottle with cup-level markings to provide a measuring cup at camp. Make sure it doesn't leak.

3. Food boxes add unnecessary weight to your load. Remove ingredients from boxes and double bag them to guard against puncture seepage. Stick the directions from the box inside the bag.

4. Place margarine and honey bottles in a double plastic bag. The contents gradually ooze out, so the bottles need to be separated from the rest of the items in the pack.

5. Carry a mess kit knife for spreading peanut butter and cream cheese, to save cleaning a pocketknife.

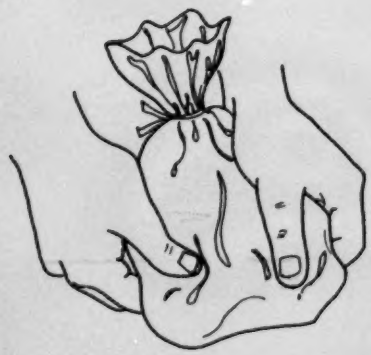
6. Include several sturdy plastic bags, for they have many uses. They serve as a salad bowl for cabbage or vegetables. They hold biscuit mix and water so you can knead the outside of the bag, instead of getting your hands messy, when making bread sticks. They are handy for storing dirty tin cans and utensils on the way home. They also will hold shoes or clothing and, of course, all trash to be carried out.

7. Consider taking some powdered coffee creamer. One tablespoon of creamer per cup of powdered milk makes the drink much more palatable.

8. Remember that at high altitudes, water takes longer to boil. You should allow one-third more cooking time.

9. Fred Powledge writes in *The Backpacker's Budget Food Book* (1977) that macaroni, spaghetti, and noodles require more water to prepare than rice or instant potatoes. Take this into consideration during meal planning, if water is going to be at a premium. Note, too, that some foods can be prepared in less water than specified on the package.

10. Before using a skillet or pot on the campfire, coat the outside with a small amount of liquid detergent or rub with a bar of soap. This allows the utensil to be wiped off,



Use plastic bags for mixing foods.

Coating the outside of pots with soap before using them on a campfire makes them easy to clean.

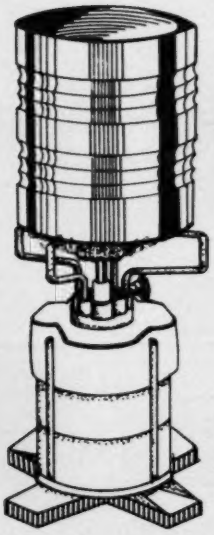
rather than scrubbed. It also can be left black during the trip and carried in a plastic bag.

11. If you carry No. 10 tin cans to use as cooking pots on the stove, instead of a camping pot nest, store food items in the cans during the trip.

12. Remember these basic equivalencies:

3 teaspoons = 1 tablespoon
4 tablespoons = ¼ cup
16 tablespoons = 1 cup

Lightweight menu choices



Foods may be selected and menus planned from the following list. Recipes for most of the foods are included in this module.

BREAKFAST

—Hot cereals such as oatmeal with honey, brown sugar, instant dry milk, or raisins added.

—Cold cereals with instant dry milk and dried fruits.

—Grits.

—Dried fruit (plain or stewed).

—Hard-boiled eggs and Melba toast.

—Scrambled eggs or omelets.

—Hard sausage that requires no refrigeration.

—Bagel or English muffin with jelly, honey, or marmalade.

—Granola bar, breakfast bar, or toaster pastry.

—Coffee cake.

—Fresh fruits such as apples or oranges.

—Beverages (Spiced Hot Chocolate, Cocoa Mocha, Spiced Tea, coffee, tea, instant breakfast drink, Fruit Milk Shake).

LUNCH

—Packaged soups that need only to be mixed with water before heating and serving. (Choices range from basic chicken noodle and vegetable to the more exotic French onion, green pea, and beef oriental noodle.)

—Sandwiches (peanut butter combinations, cream cheese combinations, cheese, tuna, deviled ham, canned ham luncheon meat, corned beef, sausage, or jerky can be put on various breads, bagels, crackers, or Melba toast.)

—Fresh fruits.

—Dried fruits.

—Nuts (peanuts, walnuts, or almonds).

—Sweets (GORP—Good Old Raisins and Peanuts, granola bars, candy bars, hard candy, Peanut Butter Candy, Peanut Butter Fudge, Peanut Butter Logs, Robinson Crusoes, or other homemade treats).

—Beverages (water, flavored drinks that are Vitamin C fortified, canned juices).

SUPPER

—Soups (dehydrated or fresh).

—Rice dishes (Wild Rice and Chicken, Confetti Rice, Rice Curry, Shrimp Curry, Tuna Rice, packaged rice mix).

—Macaroni dishes (Chicken Vegetable Soup with Macaroni, Macaroni Jerky, Macaroni Vienna Sausages, Macaroni Slop).

—Spaghetti dishes (Nutty Spaghetti, Peanut Sauce over Spaghetti, Meat Sauce and Spaghetti).

—Noodle dishes (Noodles a la Camp, Chow Mein Noodles).

—Potatoes, dressing, lentils (Creamy Chicken Potatoes, Easy Dressing, Lentil Chili).

—Sweets (S'mores, Bread Sticks, Popcorn, Pudding, Tapioca Pudding, Coconut Angels).

—Beverages (Spiced Tea, Fruit Milk Shake, bouillon).

SNACKS

—Sweets (GORP—four variations, Peanut Butter Candy, Jan's Energy Bars, Fruit Bars, Chocolate Peanut Butter Cookies, Walnut Sticks, Peanut Butter Delights, Peanut Butter Balls, Nut Breads, Oatmeal Carmelitoes, Apple Leather, Jerky, Pemmican).

—Fruits (fresh and dried).

—Vegetables.

Five-day menu examples

DAY 1

Breakfast

Hard-boiled eggs (1-2 per person)—Do not carry eggs in warm weather.
Hard sausage
Melba toast
Coffee/hot chocolate
Juice

Lunch

Cream cheese and bagel with any leftover sausage
Orange
Cookies
Flavored drink (Vitamin C fortified) mixed with water

Snack

Jan's Energy Bars

Dinner

Nutty Spaghetti
Carrot sticks
Bread
Spiced tea/hot flavored gelatin

DAY 2

Breakfast

Granola with instant dry milk and raisins
Hot chocolate/coffee
Orange drink (Vitamin C fortified)

Lunch

Cheese and tuna on light rye bread
Apple
Almonds
Hard candy

Snack
GORP

Dinner
Confetti Rice
Melba toast
Carrot sticks
Pudding
Spiced tea

DAY 3

Breakfast
Hot cereal with raisins, honey, instant dry milk, stewed fruit
Coffee/hot chocolate/breakfast drink (Vitamin C fortified) mixed with water

Lunch
Peanut butter and honey on Logan bread
Raisins
Granola bar
Flavored drink (Vitamin C fortified) mixed with water

Snack
Peanut Butter Delights

Dinner
Shrimp Curry
Bread sticks (store-bought)
Peanut Butter Fudge
Coffee/spiced tea

DAY 4

Breakfast
Scrambled eggs (dehydrated) mixed with onions, cheese, and meat bar
Melba toast
Coffee/hot chocolate/breakfast drink (Vitamin C fortified) mixed with water

Lunch
Hot soup
Jerky
Vienna sausages
Crackers
GORP
Water

Snack
Dried apricots and figs

Dinner (over a campfire)
Wild rice
Bread sticks with butter and honey
Bouillon/spiced tea
Marshmallows

DAY 5

Breakfast
Cold cereal with instant dry milk, raisins, and honey
Blueberry coffee cake
Coffee/hot chocolate/breakfast drink (Vitamin C fortified) mixed with water

Lunch
Peanut butter and honey on Boston brown bread, remaining Logan bread, or Melba toast
Dried apple leather
Nuts
Carrot sticks
Water

Snack
Hard candy

Dinner
Noodles a la Camp
Leftovers
Pudding
Hot flavored gelatin/spiced tea/bouillon/coffee

Basic Four food groups

Nutritionists agree upon the human body's daily needs from the basic food groupings. These groupings and some sample foods from each are listed below.

1. Milk group: Milk, cheese, ice cream, and cottage cheese.
2. Meat group: Meat, fish, poultry, eggs, dry beans, dry peas, and nuts.
3. Bread-cereal group: Bread, oatmeal, rice, corn flakes, shredded wheat, spaghetti, macaroni, and crackers.
4. Fruit-vegetable group: All fruits and vegetables are included in this category.

MEAL PLANNING

When students plan meals, remind them to follow this suggested, daily nutritional plan:

Milk group—two to four servings.
Meat group—two servings.
Bread-cereal group—four servings.
Fruit-vegetable group—four servings.

Introduction to recipes

Editor's Note: All recipes are for 3-4 people and should be used on trips of less than one week. Recipe ingredients and instructions are set in italics.

If you are also teaching metrics to your students, have them make some of the recipes using metric measurements. They can convert ingredients using the following approximate conversions:

Metric Conversion Table

1 teaspoon	5 milliliters
1 tablespoon	15 milliliters
1 cup	30 milliliters or ¼ liter
1 pint	½ liter
1 quart	1 liter
1 gallon	3¾ liters
1 ounce	30 grams
1 pound	½ kilogram

These recipes have been tested both at home and under field conditions. Field conditions include using No. 10 tin cans to cook in, a pair of pliers for lifting hot cans, and a wooden spoon for stirring; experiencing various kinds of weather—hot, cold, windy, rainy, sunny, and cloudy; and using what Fred Powledge describes in *The Backpacker's Budget Food Book* as a stove with only two positions: "towering inferno and off."

Breakfast recipes

CEREALS

Cereal is a particularly good breakfast when your group plans an early start. On a cold morning, hot cereal enhanced with honey, butter, raisins, or dried fruit is hard to beat. Hot cereals come in small, individual packets, or they can be packaged in one large plastic bag (doubled for strength), premeasured for the amount needed by your group. When measuring hot cereals, allow 3 ounces per person for each meal. The biggest drawback to using premeasured, group-prepared cereal is scouring out the No. 10 tin can afterwards.

Grocery stores have individual packages of cereal with flavors such as apple and cinnamon oatmeal. Pouring hot water over granola or bran, then adding instant dry milk, honey, cinnamon, or whatever you prefer also is good. Unfortunately, young people are not too enthusiastic about hot cereal, and there is often a large amount left over. Adults are only slightly more accepting of hot cereal, although many backpackers prepare an overabundance of hot cereal with the idea of frying the uneaten amount as fritters for lunch or dinner. If this idea appeals to you, shape the leftover cereal into patties and fry in oil. (If the cereal doesn't hold together well, add a package of scrambled egg mix, then fry.)

Cold cereal, unlike hot cereal, seems to disappear. Perhaps one reason cold cereal is more popular is that many people are more familiar with the quick, cold-cereal routine at home. Allow 1 cup of cold cereal per person for each meal.

GRITS

Fried Grits

1 c. hominy or soy grits
4 c. boiling water
5½ tsp. flour
1 egg or equivalent mix
Salt and pepper to taste

Boil grits for 25 minutes. Mix in remaining ingredients. Use about ⅓ of the mixture to shape each flat cake. Saute in butter or drippings until brown. Serve hot either plain, with butter, or coated with syrup or honey. Variation: Add garlic cheese.

EGGS

For those who are strictly eggs-for-breakfast eaters, eggs, too, can be included in the menu. Fresh eggs should not be carried in hot weather, however. Use dehydrated eggs or mixes instead.

Scrambled Eggs

6 eggs or equivalent mix
¼ c. shortening (bacon grease has more flavor)

This basic recipe can create a gourmet dish with minor additions. Try adding one or more of the following:

Meat sauce
Dried onion flakes
Grated cheese
Chopped green pepper
Spaghetti seasoning
Canned mushrooms
Dried beef or boiled ham

An excellent breakfast or lunch can include hard-boiled eggs. Boil the eggs the day before a trip and use the first day out if the weather is not hot. Allow two per person. Together, the following make an interesting and satisfying meal:

Hard-Boiled Eggs with Sausage

6-8 hard-boiled eggs
1 box Melba toast
½ stick of hard sausage
squeeze margarine
jelly

Dehydrated eggs reconstituted by adding liquid seem to lack taste appeal. However, scrambled eggs and omelets made from mixes do provide a change for back-country travel.

DRIED FRUIT

Stewed Dried Fruit

1 package of dried fruit
water to cover

While the mixed fruit is considerably cheaper, either apricots, peaches, or apples alone are usually enjoyed more. If soaked overnight, fruit takes about 10 minutes to prepare the next day. If not soaked, cook a little longer.

Hot, cooked fruit is especially good on a cold or damp morning. Uncooked dried fruit can be added to a bowl of cereal. It also can be added to a meatless curry. Prunes are good for the first few mornings to aid regularity.

SWEETS

Doughnuts
Granola bars (see recipe in section on Foods To Be Made Before the Backpacking Trip)
Breakfast bars
Toaster pastry
Bagel with cream cheese or butter and jelly
English muffin with orange peel marmalade
Coffee cake

Prepackaged Sweets

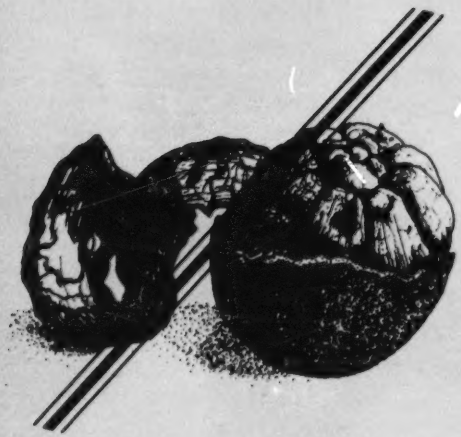
Although doughnuts often become misshapen in the pack, students rarely seem to mind. Doughnuts are always a big hit, as are granola bars. Toaster pastries offer another variety of sweets already packaged. Of the three, granola bars carry best in the pack.

Breakfast bars and squares come in a variety of flavors, including vanilla, chocolate, cinnamon, peanut butter crunch, and chocolate chip. The bars weigh about 1.5 ounces each and, according to their labels, are a complete meal.

Instant breakfast drinks also are available in an array of flavors, ranging from the usual chocolate, vanilla, and strawberry, to chocolate malted and eggnog. These packets weigh 1.2 ounces each.

Marmalade

Oranges are a delicious fresh fruit for the trail. The peelings, however, take a long time to decompose and are unsightly in the wilderness. Therefore, they must be packed out, unless you use the peelings and gain a treat at the same time by making orange peel marmalade.



Do not throw away fruit peelings—carry them out.

Orange Peel Marmalade

Peeling from 1 orange
1 tsp. lemon juice
Grated lemon rind (optional)
5 Tbsp. sugar
1¼ c. water

Soak peeling overnight in 1¼ cup water (use your marked water bottle as a measuring cup). Or you can soak the peeling in your water bottle all day and prepare the marmalade over the evening campfire, to be used immediately or the next morning. After soaking the peeling, scrape away the pith and cut peeling into tiny bits. Add all other ingredients and simmer 10-15 minutes.

Coffee Cake

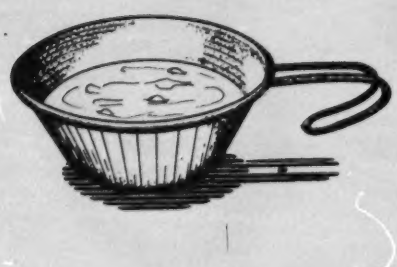
Another treat to be made on a lazy morning or for a late-evening snack is coffee cake. You'll need a mini-oven such as Optimus makes. It weighs 15 ounces and fits onto a backpack stove. A variety of cake mixes can be used to make the coffee cake. Gingerbread mix is especially good with hot applesauce.

Blueberry Coffee Cake

1 blueberry muffin mix
Water as directed
Squeeze of liquid margarine

Mix ingredients and pour batter into greased pan. Bake for 25 minutes WITHOUT peeking.

Lunch recipes



SOUPS

There are a variety of instant soups available on your grocery shelf. You may need to try out several to find your favorite brands.

In cold weather, something hot is a "must." Individual packets of instant soup have several advantages. They come in a variety of flavors, to accommodate different tastes, and by preparing the soup in each hiker's own cup, you eliminate cleanup of a large pot—a bonus attraction! Another plus for individual packets is that the only item to be put on the stove is water. Boiling water provides a choice of beverages—coffee, chocolate, tea, or flavored gelatin—as well as soup.

Crackers, wafers, and salted bread sticks are excellent accompaniments for the soup.

SANDWICHES

Peanut Butter

Peanut butter is the backpacker's staple food. It provides quick energy, has a high calorie count, doesn't spoil, and makes a satisfying meal. A small-sized jar will be

enough for one meal, with some left over. Peanut butter can be eaten by itself on crackers, wafers, breads, Melba toast, or graham crackers. Combinations are particularly good. Try these:

Peanut butter and jelly
Peanut butter and honey
Peanut butter, honey, and marshmallow spread
Peanut butter, honey, raisins
Peanut butter, raisins, figs, dates
Peanut butter on apple slices
Peanut butter and dried banana chips
Peanut butter and cheese
Peanut butter and bacon

A backpacker can put together some strange, but surprisingly good, food combinations. You'll have to try peanut butter, honey, and Spam with cabbage to believe how good it tastes!

Cream Cheese

Cream cheese adds a gourmet touch to a backpacker's diet. In hot weather, it will not keep long out of refrigeration, but it can be carried the first day out, unless the temperature is exceptionally high. At least two 3-ounce packages are needed per meal for 4 people. Try these combinations:

Cream cheese and raisins
Cream cheese and dried fruit
Cream cheese, pineapple, raisins, and nuts
Cream cheese and salami
Cream cheese and corned beef
Cream cheese and bacon bits
Cream cheese and pressed ham, beef, turkey, or other meat.

Fruit-nut spreads are good on nut breads, Boston brown bread, Logan bread, or bagels. Canned nut breads pack well, but one can will be enough for only two or three people. Fresh banana nut, zucchini, pumpkin, or any other kind of nut bread is good, but it must be protected against heavy pack items that might squash it. Logan bread is a bit more solid and holds together well. Sandwiches with meat are bagel specials! Try cream cheese and salami on a bagel. Bagels are suitable for packing because they are not easily squashed, but they do take up space. Melba toast or graham crackers also go well with cream cheese.

Tuna

Canned tuna fish lasts indefinitely and can be a dependable meal late in the backpacking trip. Tuna is often eaten on wafers or Melba toast. The smell of tuna, however, will attract wild animals so be sure to wash out cans and seal them in plastic bags.

When mayonnaise is combined with high protein foods such as tuna, chicken, ham, or eggs, it will spoil quickly and can be unsafe.

Tuna Salad

Combine:
1 6½-oz. can tuna
¼ c. pickle relish
1 Tbsp. lemon juice
3 hard-boiled eggs
1 stalk of celery (diced)

Tuna salad also can be made from tuna, relish, and mayonnaise. Be cautious of tuna salad in warm weather, however, because it spoils quickly. A can of tuna should be used as soon as it is opened.

Other salad combinations can be made with canned ham, chicken, turkey, or with hard-boiled eggs alone. Do not allow high protein foods to remain unrefrigerated in warm weather.

CHEESE

Cheese is an excellent choice, if the weather is not too hot; warm cheese becomes oily. Chunk cheese seems to hold up better than individually sliced pieces, and cheese in a sealed wax coating holds up better yet. Cheese may be served on regular breads, bagels, Melba toast, or crackers. It may be combined with meats such as tuna, Spam, or hard sausage (a nonrefrigerated variety). If you carry a rather large chunk of cheese, some can be added to scrambled eggs, trail vegetables, bread stick or biscuit dough, soups, or almost anything.

PACKABLE MEATS

Deviled ham
Canned chicken or turkey
Jerky
Vienna sausages
Spam
Corned beef

Nonperishable meats can be taken on a backpacking trip to add some variety to freeze-dried foods. The cans, however, are bulky and heavy so don't plan many meals requiring canned meat. Remember to carry out any cans you take in. Jerky is lightweight and provides a protein base for lunch. It can be eaten as is or crumbled into a cup of soup.

Deviled ham can be used in place of tuna in the tuna salad recipe, or served (early in the trip) in a cabbage leaf roll, or made into a ham salad sandwich.

Deviled Ham Salad

1 6¾-oz. can deviled ham
¼ green pepper (diced)
Creamy salad dressing to moisten well (If the weather is warm, do not let this sit out once it is opened and mixed with the ham.)

The supermarket has rows of items which can be substituted for the freeze-dried packets. For example, noodles, rice, macaroni, dressings, instant potatoes, and minestrone soup mixes are lightweight choices.

Depending on the length of the trip, you may want to eliminate the weight of the box by packing contents in double plastic bags. Place directions and a list of any extra ingredients needed (instant dry milk, margarine, spices) inside the bag.

The beauty of a one-pot meal is that the entire food intake can be eaten out of a cup or bowl. While it is not necessary to serve anything else, bread or crackers are good additions.

All one-pot meals cooked over a backpack stove will scorch the food on the bottom if not stirred frequently. It is advisable to have each stove manned constantly.

RICE DISHES

Wild Rice and Chicken

1 box wild rice
1 5-oz. can boned chicken
1 package mushroom gravy
Margarine (optional)
Onions (optional)
Mushrooms (optional)
2⅓ c. water

Bring water and margarine to boil. Stir in rice. Cover tightly and simmer until all water is absorbed—about 25 minutes. Add other ingredients and stir well.

Another recipe that is dinner-party material, as well as a vegetarian's delight, is Confetti Rice.

Confetti Rice

Cook 1 c. of brown rice (makes 3 cups)
In 4 Tbsp. of margarine, saute:
1 Tbsp. dried onion flakes
½ c. (4 oz.) dried fruit (chopped)
⅓ c. raw peanuts
⅓ c. sunflower seeds
(⅔ c. of any nuts may be substituted for peanuts and sunflower seeds)
Stir in:
½ tsp. ground cloves
½ tsp. salt
Cooked brown rice
1 tsp. curry powder (optional)

Rice Curry

1 c. rice, uncooked
¼ c. onions (chopped) or 1 Tbsp. dried onion flakes
2 tsp. curry powder
½ tsp. salt
1 Tbsp. margarine
3 c. water
⅔ c. dried fruits (apricots, raisins, dates, pears)
⅔ c. nuts (almonds, cashews, peanuts)

Accompany this meal with side dishes of any of the following: shredded or flaked coconut, salted peanuts, banana chips, chutney, raisins, bacon bits, or canned onion rings.

Shrimp Curry

1 c. brown rice, uncooked
2 cans shrimp
2 envelopes mushroom soup
¼ c. raisins
Margarine to taste
2 c. water

Add brown rice to water and salt and bring to a boil. Stir once or twice. Lower heat, cover tightly, and simmer until rice is almost done, about 45 minutes. Add shrimp and raisins the last few minutes of cooking time.

Tuna Rice

1 c. instant rice
1 6½-oz. can tuna
1 pkg. instant cream of chicken soup
Margarine to taste (optional)
1 c. water

Bring water, salt, and margarine to a boil. Stir in rice. Remove from heat, cover, and let stand 5 minutes. Add tuna and soup, simmer until heated through.

Rice Mixes

The grocery store carries several different flavors of packaged rice mixes. Use one box of the rice mix and add one can of any meat for a meal. Tuna is good with Spanish rice. Add shrimp to the fried rice with almonds. Chicken or turkey are good additions to the chicken-flavored rice.

MACARONI DISHES

Chicken Vegetable Soup With Macaroni

3 c. boiling water
3 bouillon cubes (chicken or combination of chicken and beef)
1 c. dried vegetables (or minestrone soup mix)
¼ c. dried onion flakes
2 Tbsp. dried green peppers
¼ c. margarine
1 c. macaroni (rice, noodles, or dehydrated potatoes may be substituted)
Salt, pepper, mustard, and chili powder to taste
1 5-oz. can boned chicken

Bring water and bouillon cubes to a boil. Add rest of ingredients and cook until macaroni is done, stirring frequently. Serve as is, or add instant potatoes to thicken the soup.

Macaroni Jerky

1 box macaroni and cheese
½ c. jerky pieces (homemade or store-bought)
2 Tbsp. dried onion flakes
1 envelope of instant cream of mushroom soup mix
Margarine
6 c. water

Boil water and add macaroni, stirring frequently. Before macaroni is done, add remaining ingredients. Stir constantly until macaroni is tender.

Macaroni Vienna Sausages

1 box macaroni and cheese
1 5-oz. can Vienna sausages
1 envelope instant vegetable-beef soup mix
Soy sauce (optional)
Onions (optional)

Cook macaroni in boiling water, stirring frequently to keep from burning. Add cheese, sausages, and soup. Stirring constantly, cook until done.

Macaroni Slop

1 box macaroni and cheese
1 package Sloppy Joe or taco mix

Cook macaroni in boiling water, stirring frequently. When macaroni is tender, add either kind of mix.

SPAGHETTI

It takes two pots to prepare spaghetti dishes. The following recipe is a vegetarian version.

Nutty Spaghetti

Cook 8 ounces of spaghetti in boiling salted water. Do not drain completely. Prepare sauce:

2 Tbsp. oil
1 large onion (chopped) or 1 Tbsp. dried onion flakes
1 small can mushrooms or ¼ c. freeze-dried mushrooms
2 Tbsp. (scant) soy grits
¼ c. sunflower seeds
¼ c. peanuts
1 tsp. oregano
1 tsp. chili powder
1 envelope instant tomato soup mix or spaghetti mix
2 Tbsp. parmesan cheese
Salt and pepper to taste

Saute onion and mushrooms in oil. Add grits, seeds, and nuts, stirring constantly until they are toasted (about 5 minutes). Add seasonings, sauce mixes, cheese, and spaghetti.

The grits, sunflower seeds, and peanuts can be ground and packaged together for the trip.

Peanut Sauce Over Spaghetti

1 c. peanut butter
1 onion (chopped) or 2 Tbsp. dried onion flakes
1 tsp. garlic powder
¼ c. instant dry milk
½ tsp. honey
2 Tbsp. lemon juice or lemon crystals
1¼ tsp. soy sauce

Mix all ingredients, then add hot water until the mixture is the consistency of heavy cream. Serve peanut sauce over spaghetti, topped with sauteed mushrooms. If any sauce remains, serve it as a dip with bread or fruit. (Apple slices and banana chips are good.)

Meat Sauce and Spaghetti

Cook 8 ounces of spaghetti in boiling salted water. Add:

1 envelope instant tomato soup mix
1 envelope spaghetti sauce mix
1 onion (chopped) or 2 Tbsp. dried onion flakes
1¼ tsp. oregano
1 tsp. garlic powder
1 bay leaf
1 package chopped, dried beef

Meat variations: jerky, tuna, chicken, Vienna sausages, or soybean meat substitute.

NOODLES

There are several brands of noodles with sauces available. They are lightweight and can be mixed with chicken, tuna, or dried beef.

Noodles a la Camp

1 box or package of noodles
1 5-oz. can boned chicken
1 package mushroom gravy mix
Margarine to taste

Cook noodles; drain when tender. Add chicken and gravy mix. To vary, substitute chicken noodle soup for mushroom gravy, use Noodles Almondine instead of plain noodles, substitute tuna for the chicken and add split pea soup mix, or use onion soup mix with tuna.

Chow Mein Noodles

1 5-oz. can boned chicken
2 envelopes of gravy mix
(1 each of onion and mushroom or your preference)
Dehydrated vegetables (optional)

Make gravy according to package directions. Add chicken to gravy. Serve over chow mein noodles.

POTATOES, DRESSING, LENTILS

Potatoes are packaged in a variety of "instant" ways: mashed, au gratin, hash brown, or with sour cream and chives. Potato meals are easy to prepare.

Creamy Chicken Potatoes

4 c. water
4 c. instant mashed potatoes
1 Tbsp. margarine
1⅓ c. instant dry milk
4 envelopes cream of chicken soup
2 5-oz. cans boned chicken

Prepare potatoes as directed. Boil water and add soup mixes, chicken, and mushrooms. Simmer until well heated. Serve over mashed potatoes. (Rice or noodles can be substituted for potatoes.)

Easy Dressing

Mix 1 box of dressing (plain cornbread dressing, herb dressing, chicken-flavored dressing, or pork-flavored dressing). Add an equal number of cans of turkey, chicken, corned beef, ham, salmon, shrimp, or tuna. Cook in skillet.

Lentil Chili

2 c. lentils
1 Tbsp. chili powder (more for spicier chili)
2 Tbsp. dried onion flakes
1 tsp. cumin
1 tsp. salt
¼ tsp. garlic powder
8 c. water
½ c. tomato powder (optional)
⅓ c. flour (optional)

Combine all ingredients and simmer 30-45 minutes.

This dish requires a relatively long cooking time, and therefore uses a lot of gas. It might be a good meal to cook over a campfire.

BEVERAGES

For most beverages, individual servings can be prepared in an insulated cup or a Sierra cup.

Coffee (½ cup instant coffee will make 24 cups)
Tea (1 tea bag will make 2 cups)
Hot chocolate (¼ cup mix will make 1 serving)
Instant breakfast drinks (1 Tbsp. will make 1 serving)
Fruit crystals (1 Tbsp. per serving or 1 heaping cup for 16 servings)
Flavored gelatin (3-4 servings per box)
Pudding (3 servings per box)
Spiced Tea (2 Tbsp. mix per serving or 2 cups for 16 servings)
Milk (⅓ cup instant dry milk plus 1 Tbsp. powdered coffee creamer per cup of water)

By figuring out the approximate amount you plan to use on the trip, and adding a couple of tablespoons for good measure, you can package any of the powdered beverages in double plastic bags for ease in carrying.

Several companies make excellent hot chocolate mixes in individual packages and in large canisters. The canister eliminates the problem of disposing of foil packets that often will not totally burn. Less expensive is an instant cocoa mix you make yourself, using cocoa, sugar, and instant dry milk. Use a flour sifter to mix ingredients thoroughly.

Instant Cocoa Mix

½ c. cocoa
6 Tbsp. sugar
2 c. instant dry milk

Mix ingredients together thoroughly. Allow 3 or 4 Tbsp. per cup of hot water.

Cocoa Mocha

¾ c. instant cocoa mix (homemade or store-bought)
¾ c. instant coffee
1½ c. powdered coffee creamer (optional)

Mix ingredients. Use 3 or 4 Tbsp. per cup of hot water.

Spiced Hot Chocolate

1½ c. instant cocoa mix (homemade or store-bought)
1½ c. powdered coffee creamer
½ tsp. (scant) each of any two of these spices:
ground cloves
nutmeg
cinnamon
allspice
ginger

Mix ingredients. Use 3 or 4 Tbsp. per cup of hot water.

Spiced Tea

1 8-qt. can powdered lemonade
1 8-qt. can powdered orangeade
¾ can instant tea
½ can sugar
1 Tbsp. cinnamon

Mix all ingredients together. Use 2 Tbsp. per serving. This amount will make approximately 36 cups of tea.

Instant breakfast drinks can be served hot or cold at any meal. Use those that are Vitamin C fortified. Gelatin comes in a variety of flavors, but it is mostly sugar.

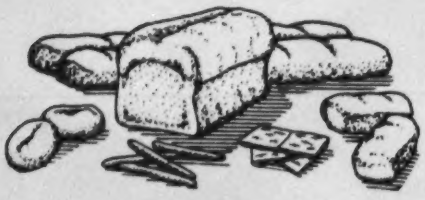
For a change, try a fruit milk shake.

Fruit Milk Shake

4 c. instant dry milk
1 c. fruit crystals
4 Tbsp. powdered coffee creamer
4 c. water

Combine all ingredients and drink.

Breads and Spreads



BREADS (These quantities will serve up to 12 for one meal).

Regular bread—white, rye, wheat, oatmeal, or pumpernickel (2 small loaves)
Bagels (3 bags)
French bread (2 loaves)
Canned bread (2 loaves)
Nut breads (2 loaves)
Wafers (2 boxes)
Brown bread (5 cans)
Melba toast (1 box)
Bread sticks (2 bags)
Crackers (2 boxes)

SPREADS

Ketchup
Mustard
Chutney
Salad Dressings (In hot weather, use immediately after opening)
Margarine
Your own favorites

Spreads for sandwiches can be put in a tube for your pack. In warm weather, once a jar of mayonnaise or creamy salad dressing is opened, it must be used at that meal and not again.

Snacks and Desserts

FRUIT

Apples
Oranges
Dried fruit
Raisins

VEGETABLES

Carrot sticks
Cabbage wedges
—mixed with chopped peanuts
—mixed with dates and nuts
—mixed with pineapple and coconut
—mixed with grated carrots, onions, and green peppers
—leaves rolled around tuna, deviled ham, chicken, or Spam

CANDY

A bag of hard candy can be a morale booster at the right time or provide needed energy on hard trips.

HIGH-ENERGY SNACKS

Granola bars and other high-energy, fruit-and-nut bars are good. Allow one bar per person for a snack. The following recipes can be made on the trail with no fire.

GORP I

1 large package of M & M Candies
1 can of peanuts
1 box of raisins

Mix using the proportions that suit your taste.

GORP II

Any combination of:
M & M Candies
Granola
Dates
Apricots, dried

Apples, dried
Banana chips, dried
Peaches, dried
Figs, dried
Coconut
Raisins
Pumpkin seeds
Toasted soy beans
Peanuts
Cashews
Pecans
Walnuts
Almonds

Yummy Balls

½ c. peanut butter
½ c. honey
½ c. cocoa or carob powder
1 c. toasted wheat germ
1 c. peanuts or soy nuts
½ c. sunflower seeds
shredded coconut

Combine all ingredients except coconut. Shape mixture into balls, then roll balls in coconut.

Peanut Butter Log

(from Diet for a Small Planet)

¼ c. peanut butter
2½ Tbsp. instant dry milk
½ c. raisins
2 Tbsp. honey
shredded coconut

Blend peanut butter and honey, then work in powdered milk to make the mixture fairly stiff and easy to handle. Knead in raisins and shape the entire batter into a 10-inch log. Roll the log in coconut. (Instead of a log, you can make individual balls, then roll them in coconut.)

Robinson Crusoes

1-lb. box graham crackers
1 small jar peanut butter (in tube or plastic jar)
1 jar marshmallow cream (in tube or plastic jar)

A Robinson Crusoe is a variation of the S'more (see recipe under Campfire Desserts). Instead of milk chocolate, peanut butter is used. Spread peanut butter on one graham cracker and marshmallow cream on another. Place the graham crackers together like a sandwich: that's a Robinson Crusoe. This recipe makes 24. (Around the campfire, toast marshmallows, instead of using the marshmallow cream.)

Peanut Butter Candy

1 c. peanut butter
1 c. instant dry milk
⅓ c. honey

Combine ingredients. You may need to use more honey to hold the mixture together, but do not use so much that the candy becomes too sticky.

Peanut Butter Fudge

(from Simple Food for the Pack)
1 c. crunchy peanut butter
½ c. instant dry milk
½ c. raisins, currants, or dried figs
¼ c. sesame seeds or sunflower seeds
¼ c. (scant) honey
2 Tbsp. wheat germ

Mix and store in plastic bag or container.

Cheese Fudge

Mix together:
4 Tbsp. cocoa
¼ lb. grated natural cheese
1 tsp. margarine
Add:
1 box powdered sugar
¼ c. nuts
1 Tbsp. vanilla

Combine thoroughly and roll into logs. Store in waxed paper. Slice to serve.

CAMPFIRE DESSERTS

If your evening meal is to have a campfire, any of the following desserts can be made to top off your dinner.

S'mores

1 pkg. graham crackers
3-4 flat chocolate bars
1 small bag marshmallows

Using a straightened clothes hanger or a skewer, toast a marshmallow over coals. Place a square of chocolate on a graham cracker and squish the toasted marshmallow between that graham cracker and another one.

Campers are usually enthusiastic about this dessert and want "somemore," thus its name. This recipe will make at least two S'mores for each person.

Variations include:

1. graham crackers, peanut butter, marshmallow (Robinson Crusoes)
2. graham crackers, toasted peanuts, marshmallow
3. graham crackers and marshmallow
4. chocolate-coated graham crackers and marshmallow
5. cookies and marshmallow
6. apple slices, peanut butter, marshmallow
7. apple slices, chocolate, marshmallow
8. chocolate chips inserted into marshmallow before it is toasted and placed between graham crackers.

Bread Sticks

1 c. biscuit mix
¼ c. water

Bread stick dough can be mixed and kneaded in a plastic bag to eliminate cleanup. Make the mixture so that the dough is not too sticky and will wrap around a stick.

Place the dough over the end of the toasting stick, working it until it is reasonably thin. It takes patience to sit and allow the bread to fully cook before pulling it off the stick. When the bread stick is done, the dough will feel hard.

Squeeze margarine and honey into the hole left by the toasting stick. This is good either as a bread or as a dessert.

Popcorn

Popcorn and oil are all that is necessary for this dessert. Shake skillet over a flame till the corn is popped. Sprinkle the popped corn with salt, garlic or onion salt, curry powder, or parmesan cheese.

Pudding

1 box of instant pudding
⅔ c. instant dry milk
2 c. water

Combine ingredients and beat for 2 minutes. Set aside in a cool spot (cave, spring, or shade). Pudding will be ready in 5 minutes. Pudding flavors include banana cream, chocolate, butterscotch, vanilla, lemon, pistachio, and butter pecan with almonds and pecans.

Coconut Angels

12 saltine crackers
4 oz. of milk chocolate bits
1 small package of shredded coconut

Melt chocolate and spoon onto crackers. Top with coconut.

Tapioca Pudding

1 c. instant dry milk
6 Tbsp. Tapioca
¼ tsp. salt
2 Tbsp. honey
1½ c. water
1½ tsp. vanilla

Combine all of the ingredients except vanilla. Bring mixture to a simmer and cook until thick, stirring constantly. Stir in vanilla and serve. Eat soon after making and do not allow to sit out.

To make a carob pudding, add 1½ tsp. carob powder.

Foods To Be Made Before the Backpacking Trip

Sweets

A farsighted teacher or trip leader will involve students in all phases of preparing for a backpacking trip. The following recipes make consolidated trail snacks full of calories for needed energy. Some are gooey, others are dry. Recipes will serve 12.

Jan's Energy Bars

Mix together:
2 c. crushed vanilla wafers
1½ c. finely-chopped toasted almonds or pecans
2 c. powdered sugar
½ lb. finely-chopped dates
1 c. finely-chopped dried apricots
1 c. raisins or chopped dried peaches
Combine separately:
2 Tbsp. corn syrup
6-8 Tbsp. honey
½ tsp. almond or vanilla flavoring

Combine all ingredients in a large bowl and mix with your fingers. If the mixture is too dry, add a tablespoon of water. Shape into small log rolls. Roll logs in powdered sugar and wrap in plastic. No baking is required. Store in refrigerator until you are ready to pack up.

Fruit Balls

1 c. chopped dried apricots
1 c. chopped dates
½ c. chopped dried figs
1 c. raisins
1 c. nuts
¼ c. honey (or enough to make mixture stick together)
1 package shredded coconut

¼ c. honey
¼ c. dates
2 tsp. vanilla or almond extract

Cream the butters and blend with sesame seeds, dry milk, and the rest of the ingredients. Shape into 1-inch balls. Chill several hours. This recipe makes 40 balls. Roll half in powdered sugar and leave half plain.

Walnut Sticks

2 c. whole wheat flour
½ tsp. salt (add more if needed)
2 Tbsp. brown sugar
4 Tbsp. melted butter
⅓ c. finely-chopped walnuts (or substitute salted peanuts)
⅓ c. cold water
⅓ c. honey

Mix the dry ingredients and drip butter over them. Mix well, then add water and honey. Blend into a stiff dough. Knead on board and press out with hands until ¼-inch thick. Cut into ½- x 3-inch sticks. Place sticks on a greased cookie sheet and bake at 325° for 30 minutes. Turn over once during baking. Store.

Peanut Butter Delights

1 c. dates
⅔ c. nuts
1 c. raisins
½ c. dried fruit (any kind)
½ c. shredded coconut
½ c. wheat germ
1 c. instant dry milk
½ c. brown sugar
1 c. bran or other dry cereal
3 c. peanut butter
1 c. honey

Chop ingredients until fine or put through a food grinder at least twice (omit peanut butter and honey in grinder). When ingredients are chopped sufficiently, add peanut butter and honey, mixing with hands. Roll into balls or logs and dust with more brown or powdered sugar. Refrigerate to harden. The delights are ready to eat, or they can be placed on an ungreased cookie sheet and baked at 250° for 30 minutes.

Caution: Peanut Butter Balls will melt in your pack on a hot day.

Peanut Butter Balls

6 c. dry rice cereal
2 boxes powdered sugar
2 medium-sized jars of smooth peanut butter
1 c. butter
12-oz. bag semi-sweet chocolate pieces
½ slab paraffin

Combine cereal, sugar, peanut butter, and butter. In a double boiler, melt chocolate pieces and paraffin. Shape dry ingredients into balls, dunk each ball in the chocolate, and dry on waxed paper.

The next recipe was a blue-ribbon winner one year in Pillsbury's Bake-Off.

Oatmeal Carmelitoes

1 c. flour
1 c. oatmeal (rolled oats)
¾ c. brown sugar
½ tsp. baking soda
¼ tsp. salt
¾ c. butter, melted
6-oz. package semi-sweet chocolate pieces
½ c. chopped nuts
¾ c. butterscotch ice-cream topping
3 Tbsp. flour

Combine flour, oatmeal, brown sugar, soda, salt, and melted butter in a large bowl until mixture is crumbly. Press half of the crumbs into the bottom of a 9-inch square pan. Bake at 350° for 10 minutes.

Remove pan from oven and sprinkle chocolate chips and nuts over baked crust. Mix the butterscotch ice-cream topping and flour, then drizzle over the chocolate and nuts. Sprinkle remaining half of crumbs over filling. Bake 15 or 20 minutes longer. Chill for easy cutting into bars. Individual pieces can be wrapped or bagged.

Make-Your-Own Granola Bars

½ c. oil
½ c. honey
½ c. molasses or maple syrup
1 Tbsp. vanilla
¼ c. instant dry milk
2 Tbsp. nutritional yeast
1 c. wheat germ
4 c. oatmeal (rolled oats)
1 c. rolled wheat
1 c. rolled rye
1 c. unsweetened coconut shreds
2 c. raisins

1 c. cashews
1 c. almonds
1 c. chopped dates
1 c. sunflower seeds

Heat oil, honey, and molasses in a large pot until mixture is thin. Remove from heat. Add remaining ingredients in order given, stirring well after each addition. Press into two 8-inch square pans. Bake at 300° for 30-40 minutes. Cut while hot. Cool before removing bars from pan.

Chocolate Peanut Butter Cookies

1½ c. peanut butter
1½ c. brown sugar
1 can evaporated milk
1 c. flour
½ tsp. baking soda
3 oz. semi-sweet chocolate pieces

Mix all of the ingredients together. Let mixture stand for 10 minutes. Drop by teaspoons onto a greased cookie sheet. Bake at 350° for 20 minutes. Vary by adding a half cup of raisins.

Breads

Logan Bread
(from the North Carolina Outward Bound School)

Mix together:
1 qt. water
1 c. oil
2 c. honey
2 c. molasses

Add liquids to:
12 c. whole wheat flour
2 c. instant dry milk
2 Tbsp. baking powder
1 Tbsp. salt
2 c. raisins
2 c. nuts

Mix well and pour into six greased loaf pans. Bake at 300° for one hour.

These six loaves will be packed with energy. This is a heavy bread that keeps its shape rather well in packs.

Banana Nut Bread

1 c. butter
2 c. sugar
4 eggs
6-8 mashed bananas
2 c. flour
1 tsp. baking soda
½ c. nuts

Cream butter and sugar. Add remaining ingredients and mix well. Bake in two greased loaf pans at 350° for 50-60 minutes.

Zucchini Bread

3 eggs
1 c. oil
1¾ c. sugar
2 c. grated raw zucchini
3 c. sifted flour
2 tsp. cinnamon
1 tsp. baking soda
1 tsp. salt
¼ tsp. baking powder
2 tsp. vanilla
½ c. nuts

Cream eggs, oil, and sugar. Add grated zucchini. Combine sifted flour, cinnamon, baking soda, salt, and baking powder. Add vanilla and nuts to egg mixture, then combine with dry ingredients. Pour into two greased loaf pans. Bake at 350° for 1 hour. Vary by adding a half cup of raisins and 2 Tbsp. of grated orange rind.

Pumpkin Bread

3 c. sugar
2 c. pumpkin
4 eggs
1 c. oil
3⅓ c. flour
⅔ c. water
1 tsp. nutmeg
1 tsp. cinnamon
1½ tsp. salt
2 tsp. baking soda
2 tsp. vanilla
½ c. pecans

Mix all ingredients together and pour into three greased loaf pans. Bake at 350° for 1 hour.

Persimmon Nut Bread

1 c. sugar
1½ sticks butter
2 eggs
2 c. flour
1 tsp. baking soda
1 c. persimmon pulp
½ c. nuts

Cream sugar, butter, and well-beaten eggs. Add remaining ingredients. Mix well and pour into two greased loaf pans. Bake at 325° for 1 hour.

Snacks

GORP III

4 12-oz. packages of semi-sweet chocolate bits
4 12-oz. packages of butterscotch bits
1 c. honey
1 c. yellow raisins
1 c. chopped, dried apricots
1 c. shredded coconut
1 c. cashews
1 c. walnuts
1 c. wheat germ
1 c. oatmeal (rolled oats)
1 c. rolled wheat

Melt chips in top of double boiler, adding honey. Pour over rest of dry ingredients in large bowl. Mix well. Pour mixture into greased pans and cool. Cut or break into hand-sized chunks. Wrap tightly in plastic. Store in refrigerator until needed.

GORP IV

Put into a food grinder one cup of each of the following:

Raisins
Dates
Figs
Coconut
Prunes
Pecans
Walnuts
Filberts

Pack the resulting mixture into a cardboard tube, such as an empty paper towel roll. Wrap in foil and refrigerate until ready to use. On a hike, peel it like a banana.

Apple Leather

12 apples (peeled, cored, quartered)
water to cover

Cook apples and run pulp through a colander. Spread apple pulp thinly on a cookie sheet and bake at 150° with the oven door cracked for about 6 hours. Allow the "leather" time to dry completely before storing. Variations: persimmon, apricot, peach, plum.

Students enjoy making jerky in the classroom. This activity could be incorporated into a study of the life of pioneers as they moved westward.

Beef Jerky

1½ lbs. flank or chuck steak
1 tsp. seasoning salt, liquid smoke, or barbecue salt
⅓ tsp. garlic powder
⅓ tsp. black pepper
1 tsp. Accent
1 tsp. onion powder
¼ c. Worcestershire sauce
¼ c. soy sauce

Cut off all possible fat. Cut with grain of meat into 2-inch strips, ¼- to ½-inch thick. Marinate overnight in the refrigerator. Lay out on oven rack. Dry at 120°-140° with oven door cracked for 8-12 hours (6-8 hours for juicier, but jerky may not be as safe).

Pemmican can be eaten as is on backpack trips—it is a meal in itself—or it can be cooked in soups and stews. Eating pemmican gives students a greater respect for people whose diet once consisted of little else during lean periods.

Pemmican

3-4 c. jerky pieces
1 c. chopped dried fruit
½ c. chopped nuts
½ c. hot fat (preferably beef or pork)

Pound the jerky with a hammer or in a mortar and pestle, until it is in powdery chunks. Add remaining ingredients and mix. Shape into one-inch balls before the mixture is cold.

Lesson Plans

The following lesson plans are offered as a suggested and field-tested means of teaching this subject material. Times are estimated for 50-minute class periods; however, the time needed for each lesson may vary depending upon the teacher and class. Pages marked as student handouts in the appendix may be reproduced for distribution.

No. 1

Title:	Meal Planning
Method:	Discussion, small group exercise
Time:	50 minutes
Purpose:	To allow the students to plan the backpacking meals, taking into consideration good nutrition and food allergies, likes, and dislikes.
Instructional Aids:	Menu Suggestion Sheet (Appendix 1), Menu Planning Sheet (Appendix 2)
Facilities:	Classroom

Outline:

DISCUSSION

I. Give students particulars of anticipated trip.
   - A. Location and description of backpacking area.
   - B. Length of stay.
   - C. Types of food preparation during the trip.
     1. Campfire cooking
     2. Cooking on a backpack stove
     3. Cold meals
   - D. Time allotted for cooking activities.
   - E. Water considerations—availability and purity.

SMALL GROUP EXERCISE

Materials needed: Menu Suggestion Sheets, Menu Planning Sheets

II. Divide class into small groups of three or four each. Discuss basic four food groups.
   - A. Assign specific tasks.
     1. Plan breakfast, lunch, and supper for each day, taking into account good nutrition and recommended servings for basic four food groups as well as likes and dislikes of group.
     2. Plan snacks for each afternoon.
   - B. Distribute Menu Suggestion Sheets and Menu Planning Sheets.
   - C. When menus have been decided on, have groups fill out all but cost sections of Menu Planning Sheets.

No. 2

Title:	Preparation for Food Buying
Method:	Large and small group discussion
Time:	50 minutes
Purpose:	To enable the class to organize for comparative shopping.
Instructional Aids:	Shopper's Guide Sheet (Appendix 3)
Facilities:	Classroom

Outline:

CLASS DISCUSSION

I. Allow time for each small group to share its menu ideas with the entire class.
   - A. Discuss whether the meal choices are nutritional.
   - B. Decide whether food item is to be made at school or at the camping site.

II. Prepare grocery list for entire class.

CLASS EXERCISE

III. Make plans for comparative shopping trip.
   - A. Using Shopper's Guide Sheet, select 15-20 items from the grocery list for comparison of costs.
   - B. Decide what size of package or can to compare for each item.
   - C. If you want to compare only certain brands, specify those brands (otherwise the cheapest will be chosen in each store).
   - D. Decide which stores are to be used in the comparative analysis.
     1. Chain grocery stores
     2. Small, independent grocery stores
     3. Quick-stop shops (convenience stores)
     4. Discount markets
   - E. Arrange transportation for each group.

Materials needed: Shopper's Guide Sheet

Note: If time is short, trip leader can decide which items to compare.

No. 3

Title: Comparative Shopping

Method: Field trip

Time: 50 minutes

Purpose: To give students firsthand experience in wise shopping.

Instructional Aids: Shopper's Guide Sheet (Appendix 3)

Facilities: Local food stores

Outline:

I. Take small groups to different stores.
II. Compare 15-20 food items, using a copy of the Shopper's Guide Sheet prepared for the entire class.

No. 4

Title: Cost Analysis

Method: Group discussion

Time: 50 minutes

Purpose: To determine the best store for purchasing food for the backpacking trip; to determine the approximate cost of meals.

Instructional Aids: Overhead projector, completed Shopper's Guide Sheets, Menu Planning Sheets

Facilities: Classroom

Outline:

CLASS EXERCISE

I. Compare cost findings of the groups.
II. Decide which store seems best in terms of:
    1. Low prices
    2. Availability of food items needed.
III. Fill in cost sections on Menu Planning Sheet where information is available.
    1. Ask each small group to project its own meal costs.
    2. Ask each group to project the total food cost for the class.

No. 5

Title: Precamp Preparations

Method: Small group exercises

Time: 50 minutes

Purpose: To continue practical preparations for the trip and to emphasize the importance of group participation and cooperation.

Instructional Aids: Stove and cooking utensils, other equipment, Menu Planning Sheet, Overnight Checklist (Appendix 4)

Facilities: Classroom

Outline:

CLASS EXERCISE

Divide class into small groups.

A. Determine mealtime responsibilities. Fill in on Menu Planning Sheets.
B. Check equipment.
   1. Clean backpacking stoves, fill tanks, light stoves to test them, pack stoves.
   2. Inventory first aid supplies.
C. Prepare some of the food for the trip.
   1. Mix Spiced Tea.
   2. Combine ingredients for GORP.
   3. Make Jan's Energy Bars.
D. Package, double bag, and label food items for the trip.

Materials needed: stove and cooking utensils, camping equipment, Overnight Checklist

Glossary

BAGEL	A hard, glazed, doughnut-shaped roll.
BIODEGRADABLE	Capable of being broken down into products that are not harmful.
BOUILLON	A clear seasoned soup made usually from lean beef or chicken.
CACHE	A hiding place, especially for concealing and preserving provisions or implements.
CARBOHYDRATE	Sugars, starches, and celluloses; a major class of animal foods.
CAROB	A chocolate substitute which is a fruit of a tree; lower in calories than cocoa.
DEHYDRATION	A process of preserving food by removing a sufficient amount of moisture to prevent spoilage.
ENGLISH MUFFIN	Bread dough rolled and cut into rounds, baked on a griddle, then split and toasted just before eating.
FREEZE-DRY	A process of preserving food by freezing and drying in a high vacuum.
FRUIT LEATHER	The pulp of fruit made hard and leathery by long and low temperature baking; a good trail snack.
GORP	Good Old Raisins and Peanuts; high-energy snack.
GRITS	Hulled, coarsely ground grain, especially corn.
JERKY	Dried strips of beef, venison, or elk.
MARMALADE	A clear, sweetened jelly in which pieces of fruit and fruit rind are suspended.
MELBA TOAST	Very thin bread toasted till crisp.
NO. 10 TIN CAN	Gallon-sized can used for storing bulk food.
OMELET	Beaten eggs cooked without stirring until set and served folded in half.
OUTWARD BOUND	An organization that provides outdoor stress challenge experiences for people.
PEMMICAN	Dried meat powdered and mixed with dried fruit and fat.

PROTEIN Extremely complex combinations of amino acids; essential constituents of all living cells.

SAUTE To fry in a small amount of fat.

SIERRA CUP A lightweight, tin cup designed for backpacking; it can serve as both a cup and a plate.

(TO) TRENCH To make a long narrow cut in the ground.

Bibliography

Angier, Bradford, *Wilderness Cookery*. Harrisburg, PA: Stackpole Books, 1963.

Fletcher, Colin, *The New Complete Walker*. New York: Alfred A. Knopf, 1974.

Hale, William Harlan, *The Horizon Cookbook and Illustrated History of Eating and Drinking Through the Ages*. Garden City, NY: Doubleday, 1969.

Jack, Nancy, *The Complete Pack Provisioning Book*. Chicago: Trend Books, Inc., 1978.

Kinmont, Vikki and Claudia Axcell, *Simple Foods for the Pack*. San Francisco, CA: Sierra Club Books, 1976.

Lappe, Frances Moore, *Diet for a Small Planet*. New York: Ballantine Books, 1971.

Miller, Dorcas, *Healthy Trail Food Book*. Charlotte, NC: The East Woods Press, Sub. Fast & McMillan Pub., 1978.

Morris, Dan and Inez, *The Complete Outdoor Cookbook*. New York: Hawthorn Books, Inc., 1970.

Powledge, Fred, *The Backpacker's Budget Food Book*. New York: David McKay Company, 1977.

Thomas, Dian, *Roughing It Easy*. Provo, UT: Brigham Young University Press, 1974.

Thomas, Dian, *Roughing It Easy 2*. New York: Warner Books, 1977.

Ustin, Arlene, *Cooking on the Run*. Morgantown, NC: North Carolina Outward Bound, 1975.

Van Lear, Denise, *The Best About Backpacking*. San Francisco, CA: Sierra Club Books, 1974.

Appendix 1—Menu Suggestion Sheet

Student handout

Breakfast

Hot cereals (served with honey, brown sugar, instant dry milk, raisins)
Cold cereals (served with instant dry milk and dried fruits)
Grits
Dried Fruit (plain or stewed)
Hard-boiled eggs and Melba toast (Do not take eggs in hot weather.)
Scrambled eggs or omelets (Do not use fresh eggs in hot weather.)
Hard sausage
Bagel or English muffin with jelly, honey, or marmalade
Granola bar, breakfast bar, or toaster pastry
Coffee cake
Fresh fruits such as apples or oranges
Beverages (Spiced Hot Chocolate, Cocoa Mocha, Spiced Tea, coffee, tea, instant breakfast drink fortified with Vitamin C, Fruit Milk Shake)

Lunch

Packaged soups that need only to be mixed with water before heating and serving
Sandwiches (Peanut butter combinations, cream cheese combinations, cheese, tuna fish, deviled ham, canned ham, luncheon meat, corned beef, sausage, or jerky on various breads, bagels, crackers, or Melba toast)
Fresh fruits
Dried fruits
Nuts (peanuts, walnuts, or almonds)
Sweets (GORP, granola bars, candy bars, hard candy, Peanut Butter Candy, Peanut Butter Fudge, Peanut Butter Logs, Robinson Crusoes)
Beverages (water, flavored drinks fortified with Vitamin C)
Fresh vegetables

Supper

Soups (dehydrated or fresh)
Rice dishes (Wild Rice and Chicken, Confetti Rice, Rice Curry, Shrimp Curry, Tuna Rice, packaged rice mix)
Macaroni dishes (Chicken Vegetable Soup with Macaroni, Macaroni Jerky, Macaroni Vienna Sausages, Macaroni Slop)
Spaghetti dishes (Nutty Spaghetti, Peanut Sauce Over Spaghetti, Meat Sauce and Spaghetti)
Noodle dishes (Noodles a la Camp, Chow Mein Noodles)
Potatoes, dressing, lentils (Creamy Chicken Potatoes, Easy Dressing, Lentil Chili)
Sweets (S'mores, Bread Sticks, Popcorn, Pudding, Tapioca Pudding, Coconut Angels)
Beverages (Spiced Tea, Fruit Milk Shake, bouillon)

Snacks

Sweets (GORP—four variations, Peanut Butter Candy, Jan's Energy Bars, Fruit Bars, Chocolate Peanut Butter Cookies, Walnut Sticks, Peanut Butter Delights, Peanut Butter Balls, Nut Breads, Oatmeal Carmelitoes, Apple Leather, Jerky, Pemmican)

Basic Four food groups

Nutritionists agree upon the human body's daily needs from the basic food groupings. These groupings and some sample foods from each are listed below.

1. Milk group: Milk, cheese, ice cream, and cottage cheese.
2. Meat group: Meat, fish, poultry, eggs, dry beans, dry peas, and nuts.
3. Bread-cereal group: Bread, oatmeal, rice, corn flakes, shredded wheat, spaghetti, macaroni, and crackers.
4. Fruit-vegetable group: All fruits and vegetables are included in this category.

MEAL PLANNING

Milk group—two to four servings.
Meat group—two servings.
Bread-cereal group—four servings.
Fruit-vegetable group—four servings.

Appendix 2—Menu Planning Sheet

Student handout

Day_____ Number of people_____

BREAKFAST MENU

_____

_____

_____

_____

_____

Food Item Needed	**Amount**	**Cost Per Item***	**Total Cost For Item***

*Total Breakfast Cost: _____

WORK ASSIGNMENTS: Cooking: _____

Cleanup: _____

*Complete after shopping.

Menu Planning Sheet

Student handout

Day_____ Number of people_____

LUNCH MENU

_____

_____

_____

_____

_____

Food Item Needed	Amount	Cost Per Item*	Total Cost For Item*

*Total Lunch Cost: _____

WORK ASSIGNMENTS: Cooking: _____

Cleanup: _____

*Complete after shopping.

Menu Planning Sheet

Student handout

Day_____ Number of people_____

SUPPER MENU

_____

_____

_____

_____

_____

Food Item Needed	Amount	Cost Per Item*	Total Cost For Item*

*Total Supper Cost: _____

WORK ASSIGNMENTS: Cooking: _____

Cleanup: _____

*Complete after shopping.

Menu Planning Sheet *Student handout*

Day_____ Number of people_____

SNACKS

_____

_____

_____

Food Item Needed	**Amount**	**Cost Per Item***	**Total Cost For Item***

*Total Snack Cost: _____

WORK ASSIGNMENTS: Cooking: _____

Cleanup: _____

*Complete after shopping.

Appendix 3—Shopper's Guide Sheet

Student handout

Name of Store_____ **Kind of Store**_____

ITEM	AMOUNT NEEDED	WEIGHT	CHEAPEST BRAND AND COST	TOTAL COST FOR ITEM
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

TOTAL FOOD COST $_____

Appendix 4—Checklist for Overnight Backpacking

Student handout

First aid supplies

_____ First aid book

_____ Whistle for leaders

_____ Salt tablets

_____ Gauze and gauze pads

_____ Adhesive tape

_____ Scissors

_____ Bandaids

_____ Elastic bandage

_____ Moleskin

_____ Sanitary napkins

_____ Chemical ice packs

_____ Hydrogen peroxide

_____ Antiseptic ointment

_____ Antigastric tablets

_____ Sunscreen lotion

_____ Calamine lotion

_____ Insect repellent

_____ Sewing needle

_____ Tea or chocolate to make hot drink

Camping equipment

_____ Backpack

_____ Tents or tarps

_____ Sleeping bags

_____ Foam sleeping pads

_____ Ground cloth

_____ Poncho

_____ Backpack stoves, gas bottles filled

_____ Candles

_____ Matches (waterproofed)

_____ Flashlight and batteries

_____ Axe, saw

_____ Pocketknife

_____ Can opener (if knife doesn't have one)

_____ Eating utensils, cups, bowls

_____ No. 10 tin cans or cooking pot nest

_____ Canteen, water bottle

_____ Pliers or bandana for lifting hot pots

_____ Plastic garbage bags

_____ Toilet paper

_____ Nylon cord

_____ Topographical maps

_____ Compasses

_____ Whistles

_____ Any specialized equipment for specific activities

Personal items

_____ Clothing

_____ Rain gear

_____ Boots

_____ Toilet items

_____ Sunglasses

Special project items

_____ Journal

_____ Pencil or pen

_____ Thermometer

_____ Magnifying glass

_____ Binoculars

_____ Camera and film

Appendix 5—Suggested Written and Practical Examinations

Written exam

1. Describe how you should dispose of your trash and garbage when you are in the wilderness.
2. You are going on a week-long backpacking trip. What are 10 items of cooking equipment that you should be sure to take along?
3. What are five foods that require refrigeration to be safe?
4. Plan a backpacking dinner for four people. Be sure to include at least one item from each of the Basic Four food groups.
5. List four high-energy foods.
6. If you want to get the most for your money, how can you go about comparatively shopping for the food items you need for a backpacking trip?
7. Define the following terms:
   a. biodegradable
   b. freeze-dried
   c. fruit leather
   d. jerky
   e. pemmican

Practical exam

To test your students' ability to prepare a meal in the outdoors, have them divide into groups of three or four and each group prepare a meal using either backpack stoves or a campfire. This can be done on an actual backpacking trip or in the school yard. Watch how they work together. Check them for safe procedures, good hygiene, and responsible cleanup. Is their meal nutritious? And the final test—how does the food taste?

1. Pack out everything you take in or burn it completely.
2. See list of equipment, page 16
3. See page 13
4. See page 24
5. See pages 38-45
6. Make a list of some of the items you need, then select several stores and visit each. Compare the prices of the items at each store. Shop at the store where the average cost is the lowest.
7. a. biodegradable—something capable of being broken down into products that are not harmful.
   b. freeze-dried—food that will not spoil because it has been frozen and dried in a high vacuum.
   c. fruit leather—a good trail snack made from the pulp of fruit that has been baked for a long time at a low temperature.
   d. jerky—dried strips of beef, venison, or elk.
   e. pemmican—dried meat powdered and mixed with dried fruit and fat.

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Specialists' Regions

Outdoor Skills Education Specialists and Education Consultants will assist you in obtaining materials and scheduling equipment and films that are available from the Department of Conservation. They also offer workshops to provide training in outdoor skills and conservation education.

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